the desired reforms are carried out by changing the constitution of the University of London, or by instituting a new University, two things appear in any case to be incontestable: that the open examinations conducted by the existing University shall continue to be conducted by an impartial authority; and that the Colleges shall be allowed to organize their work in the manner best suited to promote their own efficiency.

Sir Philip Magnus, in a letter which appeared in the *Times* on Thursday, appears to consider the dispute as one between the efficiency of "lectures" on the one hand, and of "reading" on the other; and he cites the now well-known dictum of Darwin, in favour of reading, and against lectures. But it would be to mis-read, in a strange manner, the lesson of Darwin's life, if from it were to be drawn a conclusion against the existence of Universities for teaching purposes, and in favour of examinations. If Darwin carried from Edinburgh a profound dislike to unintelligent lecturing, of the epideictic sort, he was at Cambridge known as "the man who walks with Henslow." In Sir W. Hamilton's famous analysis of the work of Universities, examination holds the first place only among no less than seven "exercises" by which study, in a teaching institution, can be promoted; the others being "disputation, repetition, written composition, the practice of teaching, conversation with and interrogation of the learned, and social study." To these must be added, by the student of science, the practice of experiment under competent supervision. Some of these appear to us of more value than examinations, some of less; but it is obvious that an institution which is solely concerned with examinations does not cover the whole ground of institutional aid to study; and it is of no avail, as between one institution and another, to exalt the benefits of "reading," which is not peculiar to either. In conclusion, we trust all parties to the controversy will bear constantly in mind that degrees and examinations, lectures and colleges, are, after all, but means to an end. The end is the spread and advancement of knowledge, through educational methods and research.

MANUAL OF BRITISH DISCOMYCETES.

A Manual of the British Discomycetes. By William Phillips, F.L.S. 8vo, 446 pages, 12 plates. International Scientific Series. (London: Kegan Paul, Trench, and Co., 1887.)

IT is by no means an uncommon misfortune to find that text-books are not written by persons the most competent, or with the widest experience; hence the results are very far from satisfactory, and no one expresses much gratification. Now and then notable exceptions to this rather general rule may be discovered, to the delight of all who are interested in that special branch of science to which the book is devoted, and the great edification of the student. It is beyond our province to inquire why the most suitable men are so seldom engaged in the production of "manuals," or why the most skilful manipulator, with a few months' study and much "coaching," cannot compete successfully with the practical hand well steadied with a twenty years' experience. It will be enough to intimate that no one acquainted with British Cryptogamic botany would for a moment hesitate to pronounce that the most suitable person to undertake a manual of the Discomycetes would be Mr. W. Phillips, of Shrewsbury, if practical knowledge, and persistent investigation, extending over at least two decades of years, are to be accepted as qualifications.

With these preliminary observations it will be at once evident that, in general terms, and as a whole, we feel bound to give this little volume our heartiest commendation; and if, in the course of our remarks, we indicate any weak places, it will be with the desire to act with the tenderness of a friend, and to point out how, in our conception, an admirable manual may be rendered more perfect or more useful.

No apology is needed for restricting a book like the present to a small controllable group of some 600 species, especially when the limits are so well defined that a student may devote himself exclusively to it, with advantage to himself, without any special acquaintance with outside groups. It is generally admitted that the entire British Fungi, with its thousands of described species, is become too unwieldy and extensive for any ordinary individual, not content to become a slave to his subject and a martyr to science. The Discomycetes present an admirable group, capable of isolated study; and for this purpose a careful and trustworthy manual, at a moderate price, is now ready at the student's hands.

"The subject of classification," the author says in his preface, "will not fail to awaken some controversy." "To adhere as closely as possible to the long-accepted Friesian system has been the practice of English authors, but this has been carried a little too far, owing to our 'insular prejudices,' and the time has come when a new departure must be made." We are prepared to accept this paragraph—exclusive of "insular prejudices," which we cannot admit—and with it the "new departure." To our mind this is a most moderate concession, and we doubt not that, if controversy there should be, its direction will be in favour of far greater innovation than Mr. Phillips or ourselves would approve. The details of the new arrangement must be subjected to closer examination and the test of experience, but at present we see no reason to take exception to them. We have long been of opinion that some such modification of the old classification was desirable.

There is, nevertheless, one point on which we have always uttered a protest, and repeat it again, since in two or three instances in the present volume the error has been committed. We allude to the addition to, or alteration of, a generic description, and the appending of the original author's name, with the word "amended" after it. We protest against *amended genera*, because they are nobody's genera; they are not the genera of the original author, but a "thing of shreds and patches." A genus should not be altered or amended, in order to fit any subsequent species which a later author may desire to incorporate. He should keep the new species outside, and accommodate it in other ways, rather than modify or "tinker" the work of a predecessor, and assume the change to be an "amendment," whereas it *may* be something very different, and probably *would* be to the old author himself, if he could be resuscitated to gaze on the freaks of his successors.

As for the number of species described in this volume,

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we may remark that it is more than double that which the "Hand-book of British Fungi" included in 1871. One of the many valuable features of the book is, that, wherever possible, measurements are given of the sporidia of the various species, in micromillimetres, in addition to the dimensions of the fungus in its entirety. We specially allude to this feature in order to have an opportunity of adding that in our experience we have never met with a more careful or expert hand at microscopical measurement than the author of the present work, an opinion based on hundreds of observations made in concert during a series of years. Yet we must urge that, however useful the micromillimetre undoubtedly is in spore-measurement, it is not so well to use it for larger bodies, such as the cup of a *Peziza*, when the millimetre or its decimal part would appeal more directly to the eye and experience. 500 μ may be equal to half a millimetre, but the mind more quickly and readily conceives the half millimetre than the 500 μ. We observe a lack of uniformity in dimensions appreciable by the naked eye, which is avoided in measurements under the microscope. For instance "¼ to ½ line broad" (p. 249), "cups 200 to 500 μ" (p. 257), "cups 500 to 800 μ" (p. 321). What relation does the "line" bear to the micromillimetre? If half a line is about 500 μ, why use the two units of measurement? Would it not have been better to follow Stevenson in his "British Fungi," and to reduce all measurements to the centimetre, millimetre, and micromillimetre, which would have been much more consistent, and far better than the mysterious "line," and had the merit of being more intelligible to the foreigner than a unit of which he has no knowledge or experience.

It would be useless to assume that the work is absolutely free from errors, but these are mostly of a trivial character, although more numerous than we could have wished. We doubt whether "conidia" would not have been a better term than "spermatia" in such a connection as *Calloria fusarioides;* and we also doubt whether our author accurately appreciates the value of the terminations in such words as *violascens*, *virescens*, *fuscescens*, *nigrescens*, &c.

As for the general scope of the work, we may say that each species begins with the diagnosis, then follows its synonymy, especially in British works, references to figures, and published specimens. If these are in the main accurate, as we have no reason to doubt, they will be exceedingly valuable, but manifestly only experience can prove this, and figures are very liable to become displaced or transposed. The habitat succeeds the synonymy, which is followed by special notes or comments; then the derivation of the specific name, now and then hardly successfully interpreted, as for instance on pp. 291, 325, and 369, where *ater* would have been better rendered "dark" instead of "black"; and finally a list of localities.

At page 358, *Ephelis* is inserted as a genus of Fries's. The same genus is claimed by Saccardo ("Sylloge," iii. p. 691) for a genus of Sphæropsideæ, and we fear that Phillips will have to give way to Saccardo, as both cannot stand, and there is no evidence that Fries regarded his genus as ascigerous.

Forty pages at the end are most useful appendages to the work, consisting of a glossary of terms, full titles of the various works quoted, and an exhaustive index. To the last page Mr. Phillips has spared no trouble to make his work as complete and useful as practicable, and we trust that he may be rewarded for his labour of love (for such it undoubtedly has been) by being called upon speedily to correct the verbal errors in preparation for a new edition.

M. C. C.

OUR BOOK SHELF.

Physiography: an Elementary Text-book. By W. Mawer, F.G.S. (London: Marshall and Co., 1888.)

THIS is another addition to the steadily increasing number of text-books adapted to the elementary stage of physiography. The usual plan of dividing a book into chapters is not adhered to, but probably the author is of opinion that he is working according to the true spirit of physiography in drawing no hard and fast lines.

In the majority of cases the author has succeeded in his endeavours to explain everything in the simplest way, but in a few cases his anxiety to do so has led him astray. The following may be quoted as examples, and the obvious shortcomings need no further comment:—

"Work is the moving of matter" (p. 8); "Energy, when active—when actually doing work—is in the condition called *kinetic*; when it is passive and only ready to do work, it is *potential*" (p. 9).

With a few exceptions of this kind, the book is admirably adapted to the syllabus which it is intended to cover. That it is not a mere cram-book is evidenced by the mass of useful information which is given. A good general outline of the nebular hypothesis is presented, in so far as it concerns the history of our globe, and there is also an outline of the classification of animals and plants. The astronomical portion of the syllabus also receives a fair share of attention. One omission, however, has been made, and that is the use and meaning of the term "stress": the word apparently does not occur even once in the whole book; this is rather unfortunate now that modern physicists are beginning to regard gravitation, magnetism, &c., as stresses.

Apart from its use as a class-book, it can be recommended to the general reader as an outline of science.

A. F.

Early Christian Art in Ireland. By Margaret Stokes. (Published for the Committee of Council on Education, by Chapman and Hall, 1887.)

THIS is one of the South Kensington Museum Art Handbooks, and it deserves to rank among the best of the series. The Christian antiquities of Ireland are in their own way as remarkable as any group of antiquities in the world, and a satisfactory account of them, such as ordinary readers might understand and appreciate, was greatly needed. In undertaking to supply what was wanted, Miss Stokes devoted herself to a task for which she was well equipped by previous study, and she has produced a little book which can hardly fail to excite interest in her subject, and which will be welcomed even by antiquaries to whom the facts of Irish archæology are already well known. A chapter on illumination is followed by one on Irish scribes on the Continent; and then come chapters on metal-work, sculpture, building and architecture, with a chronological table of examples of Irish art the date of which can be approximately fixed. The work is illustrated by upwards of a hundred good woodcuts. In her treatment of all questions relating to early Christian art in Ireland, Miss Stokes displays a thoroughly scientific spirit, and her style has the merit of being always clear, fresh, and unpretending. She rightly claims for her subject that it has a practical as well as an intellectual

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